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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/600,767 | 06/23/2003 | Tomohiro Nakayama | 108066-00085 | 5717 |

4372 7590 02/04/2005

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EXAMINER

NGUYEN, VIET Q

ART UNIT PAPER NUMBER

2827

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/600,767 | NAKAYAMA, TOMOHIRO | |
| | Examiner | Art Unit | |
| | Viet Q Nguyen | 2818 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-11, 13 and 14 is/are rejected.
- 7) ☒ Claim(s) 4 and 12 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/23/2003</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claims 1-14 are present for examination.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Assar et al (5,485,595)**.

Assar et al (see Fig.1) clearly shows a non-volatile memory cell array (100) having a plurality of blocks (0-N), and the use of a separated CAM memory (106) as claimed "address memory" for holding the address translation information between a logical address (filed 308) and physical address (408) to be used in accessing the corresponding information inside the memory array (100). Col. 3 (lines 10-20) stated that "**..erase cycles are avoided by programming an altered data file into an empty mass storage block rather than over itself** after an erase cycle .. The previous solution includes a programmable map to maintain a correlation between the logical address and the physical address of the updated information files". Col. 4 further describes how to use a free, new block to rewrite data and avoids erase the stored data, and Fig. 2 also shows that a new address translation (114) in the "address memory" (CAM 106) is used to record the new location (physical address 983) or rewriting data

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instead pointing to the old address (physical address 728) of the data to be rewritten.

Fig. 2 also shows the use of "used/free" flag and "old/new" flag to indicate whether or not the data blocks has been written and new block is used to rewritten (instead of erasing and rewriting into the old block) or not. Thus, it would have been obvious to one skilled in this art that, in case of a rewrite operation is needed, a modification data is written into a new location (983) of the array (100) instead of using the old location (728). In any event, the address fields (308, 408) will act as the claimed "correspondent information" to be recorded or stored in the "address memory (106)". Furthermore, the memory blocks used to store the new data could have come from a different memory array or a sub-block of such array, if any, as further expedient choice to one skilled in this art.

In regard to the claimed "address management" and "address comparison" for detecting address "consistency" during readout operation, Fig. 8 shows a method for comparing and finding matched address stored in the "address map" and to retrieve the stored data if there is an address consistency.

In regard to the claimed "simultaneously erase operation", Fig. 7 also shows the method in determining which blocks to be erased based on the stored flags and memory addresses.

In regard to subject matter of claims 8 & 14, the address map (CAM 106) further shows the use of flag "USED/FREE" to indicate the data before rewriting becoming effective, and the use of flag " OLD/NEW" to indicate that data has been moved or has been "effectively rewritten into some new location instead of old location. See cols.3-4.


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Claims **4** and **12** contain allowable subject matter over prior arts of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viet Q Nguyen whose telephone number is (571) 272-1788. The examiner can normally be reached on 7am-6pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (703) 308-4910. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


V. Nguyen
1/09/2005

Viet Q Nguyen
Primary Examiner
Art Unit 2818

